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ABSTRACT

While initially focused on the potential consequences of alternative capital market innovations, this project was initiated in the fall of 1972 as one outgrowth of the introduction at Yale University of the Tuition Postponement Option. A Tuition Postponement is viewed as a means of enabling students to bear an increased share of the cost of education without effectively excluding any student on the basis of parental income or wealth. In effect, the student postpones his tuition payment until after his graduation. The purpose of this initial prospectus is to present the range of issues with which the project will be concerned over the next 2 to 4 years. The first section discusses in greater detail the origins and objectives of the research effort by assessing the consequences of Tuition Postponement, identifying the possible implications of this type of program, and establishing the feasibility and social desirability of this form of income as one element of public higher education policy. The second section provides more specific descriptions of the research that has been initiated to date. The third section briefly reviews the organization and staffing of the project. (Author/PG)

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The Yale Higher Education Research Project

A Provisional Prospectus

8 February 1973

Stephen P. Dresch, Director
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The privileges of graduates in arts, in law, physic and divinity, when they can be obtained only by residing a certain number of years in certain universities, necessarily force a certain number of students to such universities, independent of the merit or reputation of the teachers...

The charitable foundations of scholarships,...necessarily attach a certain number of students to certain colleges, independent altogether of the merit of those particular colleges...

...The greater part of universities have not been very forward to adopt those improvements [in philosophy], after they were made; and... have chosen to remain, for a long time, the sanctuaries in which exploded systems and obsolete prejudices found shelter and protection, after they had been hunted out of every other corner of the world...

...it becomes every day more and more the custom to send young people to travel in foreign countries immediately upon their leaving school, and without sending them to any university... Nothing but the discredit into which our universities are allowing themselves to fall, could ever have brought into repute so very absurd a practice...

There are no public institutions for the education of women, and there is accordingly nothing useless, absurd, or fantastical in the common course of their education...

...The endowments of schools and colleges have, in this manner, not only corrupted the diligence of public teachers, but have rendered it almost impossible to have any good private ones...

The parts of education which are commonly taught in universities, it may, perhaps, be said are not very well taught. But had it not been for those institutions they would not have been commonly taught at all...

Adam Smith
"Of the Expense of the Institutions for the Education of Youth,"
The Wealth of Nations, Book V,
Chapter I, Part III, Article II
(passim)[1776].

Preface

For one more experienced in the preparation of research proposals prior to their funding, the development of a prospectus for a project already initiated has raised unique difficulties. The element common to most proposals, hyperbole, was certainly unnecessary in this case. The intention, very simply, was to acquaint the reader with the actual objectives of the Project and indicate the nature of the research already undertaken. Hopefully the document does serve this purpose.

A more specific objective was to inform relevant members of the Yale community of the existence of this research effort and enlist the support and participation of those working in similar areas. Situated by design at the academic end of the University spectrum, the success of this effort depends both on the quality of the research and on its relevance to the actual issues facing contemporary higher education. The ability to effectively tap the intellectual resources of the University will be a crucial determinant of that success.

The title refers to this prospectus as "provisional," primarily to indicate that the agenda for research has not been frozen by either external forces or internal decision. We are quite open to suggestions for additional foci of analysis and will seriously consider any comments or reactions.

In preparing this prospectus I have benefited greatly from conversations with a number of individuals, including Merton J. Peck, Kingman Brewster, Jr., Richard Nelson, James Tobin, and Albert W. Buesking.

The continuing participation of Louis Silversin, a research associate of the Project, has been of indispensible benefit in this effort.

Stephen P. Dresch
Director

Introduction

This report constitutes the first in a series to be issued by the Yale Higher Education Research Project. This project was initiated in the Fall of 1972 as one outgrowth of the introduction at Yale University of the Tuition Postponement Option. Those individuals responsible for the development of this new instrument of student finance, most notably Kingman Brewster, Jr., President, James Tobin, Sterling Professor of Economics, and Albert W. Buesking, Associate Treasurer and Comptroller, recognized that the long-term success of Yale's endeavor would hinge largely on the serious analysis of Yale's experience with Tuition Postponement and of the relevance of this experience to higher education generally. The recognition of this need led to the creation of the Higher Education Research Project. Simultaneously, the Alfred P. Sloan Foundation, which earlier had supported the investigation of innovations in higher education finance, expressed interest in the evaluation of the Tuition Postponement experiment and has provided the financial support necessary to launch a major Yale research effort.*

While initially focused on the potential consequences of alternative capital market innovations, the research interests of the project are significantly broader. In fact, it has become quite clear that the implications of new borrowing opportunities cannot

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* In addition to the Sloan Foundation, financial support for various phases of the Tuition Postponement experiment has been received from the Ford Foundation and from the U.S. Department of Health, Education and Welfare.

be assessed independently of the larger aspects of the evolution of higher education in the contemporary social context. The purpose of this initial prospectus is to present in tentative outline the range of issues with which the project will be concerned over the next two to four years.

The first section discusses in greater detail the origins and objectives of the research effort. The second provides more specific descriptions of the research which has been initiated to date. The third briefly reviews the organization and staffing of the project.

I. Origins and Objectives of the Yale Higher Education Research Project

In common with many of the commissions, panels, boards, et al, which have come into existence since the late 1960's, the Yale Higher Education Research Project is a product of the "financial crisis" which has recently been discovered to infect higher education in the United States. The specific antecedent to the initiation of this effort was the decision of Yale University, in the spring of 1971, to introduce on an experimental basis a new form of financial support for students, the income contingent loan or Tuition Postponement. In common with many private colleges and universities and an increasing number of public institutions, Yale faced a financial situation which dictated either that new options for student finance be developed or that Yale's commitment to an admissions policy providing access independent of ability-to-pay be abandoned. In this context, Tuition Postponement was viewed as a means of enabling students to bear an increased share of the cost of education without effectively excluding any student on the basis of parental income or wealth.

The implementation of this novel form of student finance clearly made a deep impression, in and beyond the academic community. In the aftermath of Yale's action Duke and Harvard Universities have introduced their own variations on the income contingent theme, a number of other institutions, individually and in consortium, have begun serious exploration of the potentialities, executive and legislative initiatives have been made in several states, and with the 1972 Higher Education

Amendments the Congress, through the instrumentality of the National Commission on the Financing of Postsecondary Education, has called for the serious examination of the potential role of income contingent loans in the evolution of federal higher education policy.

Although significant interest has clearly been aroused by the simple fact of Yale's decision to implement such a program, it is equally clear that the full potentialities of this program will not be realized unless substantial effort is devoted to a) assessing the consequences of Tuition Postponement at Yale, b) identifying the probable implications of this type of program for the very diverse elements of the broader higher education system, and c) establishing the feasibility and social desirability of income contingency as one element of public higher education policy.

Recognizing the need for a serious research effort of this type and orientation, the Yale Higher Education Research Project was established. Unlike many other recently launched efforts concerned with the current financial condition of higher education, however, this project has not been designed as a crash program for the short-term focusing of intellectual resources on the problems of higher education. Rather it is hoped that over a period of two to four years significant knowledge will be accumulated which can inform both public and institutional higher education policies.

While resources initially will be focused on the issues of income contingency, and specifically on Yale's experience with Tuition Post-

ponement, it is apparent that the full implications of this class of innovative capital market instruments cannot be assessed independently of the broader forces operating on the evolution of higher education in the contemporary period. In consequence, the purview of the research has been purposely enlarged to include a broad spectrum of issues relevant to the understanding of higher education in its current social context.

For somewhat obvious reasons, particular concern is devoted to the behavior, role and direction of development of private higher education. One study is directed to the development of a positive/normative theoretic analysis of the behavior of the endowed eleemosinary institution, focusing on colleges and universities as a primary sub-class of endowed institutions. It is our intention eventually to extend this analysis to the broader issues of institutional budgetary policy.

As an integral facet of the analysis of Yale Tuition Postponement, an early effort will be made to evaluate the existing system of undergraduate financial aids. Nominally a system based on "financial need," no serious attempt has been made to assess the adequacy or relevance of current criteria for distributing aid. Such an evaluation necessarily requires the identification of the consequences of aid policies for different classes of (potential) students and for the composition of student bodies. Particular issues of concern include the effects of changes in financial aid policy for: individual matriculation decisions; university offers of admission; the methods employed by students to

finance their educations; their likelihood of completing baccalaureate programs, of entering and completing graduate or professional programs; time-to-degree in baccalaureate and later programs. Only with answers to these questions can pricing and financial aids policies be adequately evaluated.

A number of additional concerns underlie other studies which have been initiated or are in the planning stage. A dominant interest is the evolution of the "social relations" of higher education: As technologies and forms of social and economic organization change, what are the implications for the functions and structure of the higher (or more generally, post-secondary) educational system? A study of the financing of graduate education, developed from this perspective, has already been undertaken, and extensions to undergraduate and professional education, with particular attention to recurrent or continuing education, are anticipated.

II. An Overview of Current Research Efforts

Research already initiated under the auspices of the Yale Higher Education Research Project can be most easily described under three headings: research directly related to or deriving from Yale's Tuition Postponement experience, research related to institutional behavior, and research concerned with the broader evolution of the higher education sector. While these three facets of the research are clearly interrelated, they provide a convenient framework for discussion.

Tuition Postponement, Income Contingent Loans and Related Research

The introduction of the Tuition Postponement Option (TPO) in effect represents a social experiment, the results of which should prove to be of great value in the further development of policies for financing higher education. The most easily observed responses to TPO are changes in the means by which students finance the costs of a Yale education. In this context, the fundamental question concerns the trade-off between alternative sources of financial support: Given the level of net tuition (gross tuition and other costs less gift aid), how do students choose between parental contributions, work and loans to meet the costs of education? The central focus of the research will be on the effects of alternative loan forms in determining student choices among these sources. Specifically, the introduction of Tuition Postponement permits us to assess changes in the demand for loans resulting from the addition of a new type of borrowing opportunity. TPO presents two fundamental depart-

ures from the borrowing options previously available (e.g., guaranteed and national defense loans): 1. The repayment term is significantly lengthened, and 2. a degree of income insurance is appended. In both of these dimensions TPO represents a significant improvement in the terms on which students can draw upon capital markets to finance their educational investments. On both counts it would be expected that TPO would significantly alter student reliance on borrowed funds.

The serious analysis of student responses to this marked improvement in borrowing opportunities is critically important because of the significance ascribed to capital market imperfections as a source of observed inequality of educational opportunity. Current and proposed tuition and financial aid policies, both governmental and institutional, have been justified primarily on three grounds.

First, it has been argued that many of the benefits of higher education cannot be recouped by the student. The existence of such external, or social, benefits would imply less than desirable levels of investment in education were students forced to bear the full cost. Thus, subsidization is necessary if socially desirable levels of educational attainment are to be achieved. It has often been pointed out that the "social benefits" argument is one based primarily on faith; little evidence has been marshalled to support the claim of significant externalities deriving from higher education. Furthermore, the externalities sword is double-edged: Many recent studies have focused on the precise mechanisms through which higher education is translated into higher income, and a number of "screening" and "queuing" hypotheses have

been put forth which view this relationship between education and income as essentially superficial. Should these be correct, the externalities may be negative rather than positive, i.e. the individual benefits of education may exceed the social benefits.

In this connection, a study currently in progress develops several alternative theories regarding the relationship between education and income and will attempt to derive empirically testable hypotheses which can distinguish between these. Such an analysis will have direct relevance to the design of income contingent loan programs by providing a basis for the prediction of relative growth in the incomes of the college-educated over a period in which relative educational attainments are undergoing substantial change. Specifically, concern has been expressed that, with increases in the college-educated proportion of the population, the incomes of college graduates will decline relative to other incomes. Whether this concern is warranted depends on the nature of the relationship between education, income and output. If it is warranted, the financial viability of income contingent loan programs based on a simple extrapolation of past rates of college graduate income growth could be seriously impaired. While the conservative biases in Yale TPO would render it virtually immune from such an effect, it could be of great potential significance to a publicly sponsored program.

The second prominent justification for much of current policy is the existence of serious capital market imperfections. Because the benefits of higher education (increased incomes, non-pecuniary life-style benefits, etc.) accrue over the full course of an individual's life, restrictions

on the ability to similarly redistribute the costs of education may also lead to significant under-investment. That these restrictions on student access to capital markets do exist has been well documented: Loans for educational purposes are often not available at all, and when they are available, the confinement to relatively short repayment periods does little to permit a student to distribute his repayment in accordance with the lifetime flow of benefits of the educational investment.

The most invidious aspect of these capital market imperfections is that they fall most heavily on students (and potential students) from low-income families. Directly or indirectly, students from wealthier families do have access to capital markets through the family, either by drawing upon future inheritances or by exchanging partial support of parents later for educational funds currently. However, the student whose family has no wealth upon which he can draw is very adversely affected by the severe inadequacy of commercially available (extra-family) capital. Thus, inadequate capital markets would be expected to have quite discriminatory consequences for the composition of the student population.

A related imperfection involves the student's inability to insure against the risk of significantly less than "expected" income. On average, clearly, higher education results in higher income, although the precise nature of this relationship may be debateable. However, for any individual the benefits of an education may be above or below average. If the student (or potential student) weights the chance of a lower than average income more heavily than an equal chance of a higher income, i.e. in the terms of the economist, if he is risk averse, then

he may again undertake less education than is desirable. This might be particularly true if he were forced to borrow heavily and repay a fixed debt regardless of income. One solution to this problem is to pool the risks of a group of students, insuring each participant that his education will have at least some minimal payoff. A program such as TPO effectively does provide a limited form of income insurance, guaranteeing at least that an individual's loan repayment will be less should he experience a lower-than-average income.

The income insurance aspects of income contingent loans have often been mentioned in the literature. However, very little concrete attention has been devoted to the optimal design of such instruments for various populations of potential borrowers or to the degree of benefit any given variant provides to a specified group of borrowers. The theoretic analysis of these issues is currently being pursued and should provide valuable insight into the design of programs for borrowing populations significantly different from or more diverse than Yale's.

This leads to the third primary justification for much of public and institutional policy: The income distributional argument that students from low-income families are induced by a complex of socio-economic factors to under-invest in education and that tuition and financial aid policies should be designed to compensate for these distortions in the student's circumstances and perceptions. A major factor in this complex is an alleged pessimism regarding the probable benefits of additional education, i.e. the student underestimates the increase in income which is likely to result. Coupled with this is also thought to be a greater aversion

to risk, or fear of the failure of the educational investment to pay off.

The enlargement of capital market and income insurance opportunities through such devices as TPO obviously does not serve to meet the issues raised by externalities. However, such developments represent significant steps for dealing with the problem of under-investment due to capital market failures and risk aversion. And, as indicated above, the most important benefits of these improvements should accrue to lower income students, whose educational decisions we are most concerned with influencing.

While we cannot directly observe the effects of TPO on the level of educational investment current Yale students are willing to undertake, it is possible to infer the potential significance of such an instrument by examining the degree to which student budgets are altered by its introduction. Differential responses by different classes of students, e.g. income groups, will provide the first quantitative evidence of the distortions created by capital and insurance market imperfections. Specifically, observed responses of students to TPO will permit the assessment of:

1. Uncertainties regarding future income and attitudes toward risk. Of particular interest will be the variations in income expectations and attitudes toward risk over time (as majors are chosen, post-graduate plans become firmer, etc.) and over students (socio-economic characteristics). By examining student behavior prior to Yale's simultaneous introduction of TPO and increase in tuition, it

will be possible to decompose the resultant increase in borrowing into that component due to the tuition increase alone and that part due to the specific terms of TPO. The latter will provide an index of the relative importance of this enlargement in borrowing opportunities to different classes of students.

2. Relative income prospects of TPO borrowers. A major issue in the design and implementation of an income contingent loan program is the degree of self-selection among potential borrowers. By identifying the demands for both contingent and non-contingent loans on the part of different classes of students, it will be possible to assess the relative income prospects of TPO borrowers as a group. This will provide the first quantitative evidence concerning the significance of adverse selection.

3. The financial constraints faced by different classes of students. A major difficulty encountered in evaluating current financial aid policies is the inability to identify the real financial constraints faced by students. The increase in tuition which accompanied the introduction of TPO will permit the identification of these constraints. The fundamental question is the degree to which current tuition and aid policies actually result in a "consumer surplus," that is, provide benefits which do not affect a student's educational decisions. Because of the relative irreversibility of educational decisions for those already enrolled, responses of current students (changes in budgets following the increase in tuition) can provide only indirect evidence on this score. Specifically, differential increases in reliance on loans (conventional or

income contingent) will serve to pinpoint those groups relatively favored by current tuition-aid policies. In addition, changes in the applicant and matriculant populations and in the post-baccalaureate plans of current students will be examined for more direct insight into this aspect of tuition and aid policy.

To maximize the usefulness of these studies it will be necessary to supplement the information on student financial characteristics currently available through regular university sources. Unfortunately, this information is adequate for only about 50% of students in Yale College, those on financial aid. The borrowing behavior of non-aid students, particularly in response to TPO, will provide important information on the impacts of and prospects for alternative loan programs. In addition, information on this group is necessary to the design of efficient and equitable tuition and financial aid policies. Specifically, increased financial aids (i.e. lower net costs to some students) would be permitted were tuition increased. Thus, nominally non-aid students do implicitly receive aid in the form of tuition lower than would be imposed under alternative tuition-aid regimes. Just as some classes of aid recipients receive disproportionate benefits under current policies, this may also be true of some classes of students not receiving aid. The overall assessment of current policies thus requires the analysis of its consequences for both aid and non-aid students.

For these reasons we are currently designing a comprehensive survey of the parents of Yale College students not receiving financial aid. The survey is intended to provide information concerning the financial

status of this group at least as detailed as that currently available for students applying for aid. Because of the nature of the information requested, the survey is planned to coincide with the April 1973 filing of 1972 income tax returns. The returned questionaires (hopefully in excess of 2000) should be processed and avilable for research use by early June 1973.

Parallel to and in concert with the empirical analysis of the consequences of TPO, significant effort will be devoted to the development of a general conceptual-theoretic schema which will permit the translation of the findings into the concrete evaluation of alternative public and institutional policies. In particular, we will be concerned with the role of capital market instruments (of the TPO variety and others) in a coherent higher education policy.

Clearly, if the only concern of policy were the composition of the student population, e.g. equal representation of different income groups holding "ability" constant, this could be achieved by an appropriate system of differential prices, of the sort implied by current tuition-aid policies of private institutions. If a particular group were under-represented, this could be corrected by a sufficient lowering of the price to this group (possibly even charging a negative price, i.e. paying people to attend), and/or raising of prices charged other groups.

However, given a cost constraint (total revenue from all groups at least equal to total cost), this system might result in an undesirable total amount of education provided. Thus, if the level of enrollments is also a concern of policy, then additional instruments are necessary;

the ability to price discriminate is insufficient to achieve the objectives of policy. In this situation, the additional instrument of subsidy would permit the achievement of the objectives of policy. Subsidies would permit changes in the levels of all prices to achieve the desired level of enrollment, while price variations would serve to generate the desired composition of enrollment.

In brief, although capital market imperfections (and other factors) may have undesirable consequences for the level and/or distribution of educational investment, one means of compensating for these is to directly alter prices and hence behavior. Why, it might be asked, should the more indirect (and possibly inadequate) route of correcting underlying capital market distortions be pursued?

Three answers to this question can be indicated. First, the direct route involves subsidies, and subsidies must be financed. Private (and to a lesser extent public) institutions finance subsidies out of endowments and gifts, but these sources are limited and may thus be insufficient for the achievement of enrollment level/composition objectives. Public institutions rely primarily on appropriated public funds which are also limited. In addition, these funds are generated by a tax system which may distribute the burden of subsidization in a particularly undesirable manner.

Perhaps more importantly, over-reliance on public subsidization may expose the higher education system to undesirable degrees of political influence and interference; thus, the continued existence of relatively unsubsidized private higher education may serve to protect both public

and private education from the adverse effects of political control. Thus, the direct public subsidization route is limited and may involve other undesirable consequences.

Secondly, recourse to the subsidization route implies that the "correct" outcome is known beforehand, i.e. that the questions of how much education should be provided and to whom can be unambiguously answered. The serious problem with this route is that these questions have not been satisfactorily answered and that significant disagreements exist concerning even the general nature of the right answers. And furthermore, the translation of answers into policies also involves risks: Although many different individuals would agree on some fundamental objectives of policy, major disagreements exist concerning the appropriate and effective means of achieving these; consider, for example, the debates over institutional subsidization which surrounded the 1972 federal higher education legislation.

One difficulty clearly resides in the fact that the objectives of policy are multi-faceted, as the discussion above of the three most common justifications of public intrusion into higher education suggests. When policy must compensate simultaneously for "social benefits" (externalities), capital market imperfections, and socio-economic-based distortions, the "correct" course of action becomes terribly clouded. This is particularly troublesome when (after a long period of sacred standing) the public benefits argument begins to be critically questioned and it is even suggested that these benefits may be negative rather than positive. The isolation of such potentially devisive dimensions of public

concern, by directly attacking the root causes of such sources of distortions as capital market imperfections, should permit the evolution of a more constructive public policy. And to the degree to which capital market improvements result in consequential changes in the character of higher education (how many are educated, who is educated, and what types of education are demanded), the evidence of these responses may alter conceptions of the other objectives of policy. The empirical analyses described above cannot provide definitive solutions to these issues, but they can serve as a basis for predicting the general directions and magnitudes of response to alternative policy developments.

Endowment Policy and Institutional Behavior

As the preceeding discussion of differential prices (tuition-aid) and subsidization suggests, ultimately tuition and financial aid policies cannot be evaluated independently of other aspects of institutional performance. In the case of a private institution this would include, among others, constraints on and decisions regarding the nature, quality and quantity of the product and the relationship of the endowment to current institutional activity. Endowment policies are particularly crucial because expenditure from endowment enters as a primary wedge between costs and fees charged students. Thus, an analysis of endowment policies serves as a useful initial focus for the broader study of institutional behavior. And contrary to the impression which might derive from a superficial examination of the recent literature, the

subject of endowment policy itself has not been meaningfully explicated.

The significance of a serious examination of endowment policy within the larger context of institutional action is enhanced by the increasing pervasiveness of the non-profit institution, a form of organization into which conventional economic theory provides very little insight. In a number of important areas of contemporary social concern, a significant, if not predominant, role is played by the private, non-profit, "voluntary" institution. This importance is particularly great because of the concentration of not-for-profit organizations in a small number of rapidly expanding service sectors, most notably higher education and health care. But beyond these traditional bastions of non-profit activity new areas such as primary and secondary education and legal services may be revolutionized as a result of public policies, e.g. educational vouchers, encouraging the proliferation of this form of organization.

The unique feature of the voluntary institution is its quasi-public nature, recognized and fostered by government but in general free of direct governmental intrusion into decisions regarding the types of services to be provided or the terms of their availability. In fact, the voluntary sector collectively has often determined the quality and quantity of service to be offered and the methods of financing, and this collective decision has been accepted and enforced by government.

A primary source of the strength of the non-profit institution, its source of independence and power, is the financial support and security of the endowment trust. Originating in a private philanthropy encouraged by government, the endowment makes possible a freedom from dependence on

either private or public support at any point in time. In effect, the endowment permits the translation of private philanthropy of the past into current or future activities, activities which may, or may not, encourage further public and private support. From this perspective, the activity of an endowed institution is differentiated from any other philanthropic activity, e.g. the "community chest," by the perpetuation of the institution itself through time. Were these institutions required to dispose of all contributions on a current basis, the very nature of the institutions and of their activities would necessarily be altered.

The fact of self-perpetuation renders the evaluation of institutional performance very difficult. A virtually infinite number of temporal paths of activity are consistent with self-perpetuation, and the question of the "best" or "optimal" path is of importance both to the institution (e.g. its directors, employees, beneficiaries of its activity) and to the broader society which has created an environment favorable to its establishment and growth.

Unfortunately, consistent criteria for the evaluation of an endowed institution's activity do not exist. Institutions themselves are forced to rely on "rules of thumb" to determine the contribution of the endowment to the support of activity over time, with such arbitrary rules as "preservation of corpus," "consume only current income" (inclusive or exclusive of capital gains), or "consume some constant fraction of portfolio value." Obviously, implicit in each of these rules is some path of activity over time, but precisely how these paths differ or whether there exist other clearly dominant paths is certainly not

intuitively apparent.

Similarly, public policy, which fosters the establishment of the endowment via favorable tax treatment of gifts and endowment income, has no criteria for public accountability. For example, it is currently impossible to distinguish between an endowment which actually serves some socially recognized end and one which simply makes possible the preservation of private control of wealth, control which would otherwise be dissipated by income, estate and gift taxes were assets not converted to tax exempt status.

The purpose of this facet of our research is the elaboration of a theory of the endowed institution, examining specifically the factors determining a) the levels of activity over time, b) the time path of the endowment and of endowment support of current activity, and c) the time path of charges levied on successive cohorts of beneficiaries. The analysis will explore alternative objective functions underlying institutional behavior, considering the efficiency and equity characteristics of each within the context of a model embodying the cost and demand constraints faced by institutions in various "market" settings. A very simplified version of this analytic system has already been developed (Stephen P. Dresch, "Intergenerational Equity and the Optimal Endowment Policy," National Bureau of Economic Research working paper, 14 June 1972, a revised version of which will be released shortly as a YHERP report). Initial efforts will be focused upon the complete specification of that model.

Once the basic model is fully developed, the analysis will be ex-

tended to take into account uncertainty regarding the future values of relevant variables, e.g. rates of return to endowment, rates of cost increase and rates of change in demand parameters. On this basis implications for endowment portfolio policy can be drawn.

Also relying on the elaboration of a complete model is the issue of the relationship between the method by which current fees are paid, and the optimal paths of fees, endowment, endowment support and other variables. Specifically, were the capability to finance current fees out of future beneficiary income to be created, e.g. via income contingent loans, this might significantly affect the level and/or time path of fees. Thus, the endowment policy research is not totally unrelated to our immediate concern with capital market innovations.

To gauge the relevance of the theoretic system to the explanation and evaluation of the behavior of contemporary endowed institutions, the model will be applied to a sample of institutions, on the basis of detailed survey information. A preliminary survey of ten colleges and universities has already been undertaken, and the results of this effort, while not fully satisfactory, at least indicate the feasibility of empirical implementation and the willingness of institutions to cooperate in the research.

In later phases of the research we intend to focus on the issues of public accountability of endowed institutions, on the relevance of the analysis to public higher education policy (parallels between endowment support and direct public subsidization, an issue tentatively discussed in Stephen P. Dresch, "Taxation and Fiscal Structure: Prospects and

Alternatives," 17 October 1972, a paper prepared for the Office of the Secretary, U.S. Department of Health, Education and Welfare), and on the dissemination of the research results to public and institutional policy makers.

We believe that this research is important both for the contribution it can make to public and institutional policy, particularly in the area of higher education, and for the extension of economic theory, both positive and normative, to the non-profit sector. The long-standing interest in this subject at Yale, focused on the University's non-endowment policies, should provide a very productive context for a continuing research effort.

Higher Education in an Evolutionary Context

With the exception of the study of graduate education financing, described below, this facet of our research is in the most formative stage. In the preceeding sections higher education is examined in its current form and social-economic context, and student and institutional behavior are analyzed and evaluated within these confines. Similarly, the objectives of policy (public and institutional) are described in terms of the current functions and character of the higher education system.

While these confines are legitimate and appropriate for a wide range of contemporary concerns, evidence is rapidly accumulating that they are inadequate for the analysis of higher education over the longer term. For a variety of social, economic and technological reasons, the

functions of higher education are necessarily being altered, and these changes in function are leading to, forcing and facilitating, specific responses within the higher education sector. Clearly, the nature of these responses will be of crucial importance for the future character and performance of higher education.

The objective of this phase of the research is the identification of the forces for change operating on the higher education system, of the responses of different components of the system to these forces, and of the implications of alternative public policies for the evolution of the higher education sector. From this perspective the orientation of the "conventional economics" of higher education may be counter-productive: Evaluating the efficiency and equity characteristics of system performance and of policy within the context of the status quo may effectively blinder analysis to the more important dynamic aspects of the system.

Consider two of the major issues which have been raised concerning the performance of the higher education sector: the continuing relative increase in the cost of higher education, and the discriminatory pattern of enrollments (even adjusting for "academic ability"). Within the confines of the existing structure of higher education the secular relative increase in costs is often argued to be inevitable, and policies are sought which can accomodate those increases in cost. The possibility that the costs of education may be to a high degree a function of the current institutionalization of the higher education process, and that this institutionalization may not be immutable, is never explicitly

considered.

Similarly, the magnitude of foregone earnings is one of the primary explanations offered for the observed distortion in the socio-economic composition of the student population, and much of public policy has been designed to deal with this barrier to educational opportunity. But, again, alternative policies are almost inevitably assessed within the context of the status quo.

At the least, the failure to consider the possibility of re-structuring the higher education sector to avoid such undesirable consequences as secular relative cost increases and discriminatory access due to foregone earnings forecloses a number of options which may be socially superior to the policies which are in fact introduced. More seriously, the policy responses to existing inadequacies in the higher education system may themselves serve to insulate the system from forces for change and to preserve precisely those elements of the status quo, the consequences of which policy is designed to deal.*

In brief, policies which uncritically assume the perpetuation of the basic structure of education may in fact serve to insulate that structure from socially appropriate change. In reality, of course, changes in the nature of the post-secondary educational system are occurring, as exemplified by current concerns with continuing or recurrent education, the "university without walls," and similar phenomena. It is

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* These issues are discussed in somewhat greater detail in Stephen P. Dresch, "Blindered Economics: Higher Education and Public Policy," 18 July 1972, Working Paper W2-18, Center for the Study of the City and Its Environment, Institution for Social and Policy Studies, Yale University; to be published in a forthcoming volume of the Panel on the Benefits of Higher Education, Board of Human Resources, National Academy of Sciences (1973).

these processes of change which must be identified and explained if public policy for higher education is to be positively effective.

The first substantial effort in this phase of our research is a study of graduate student financing undertaken for the National Board on Graduate Education. A major concern in this study is the changing context of graduate education and its implications for potential graduate students. Such changes in the environment as discontinuous increases and declines in the growth rates of the undergraduate population and of research have clearly had pronounced consequences for graduate education. Partially in response to these "exogenous" shocks, but also responding to more far-reaching changes in technology and economic organization, the graduate education sector has undergone significant modification. Again, policies in this area can be meaningfully developed only if these processes of change are understood. The paper tentatively will focus on two polar policy alternatives, "enclave" and "decontrol" policies, the first directed at maintaining the dominant existing structure of graduate education, the second recognizing the potential benefits of significantly increasing the heterogeneity of post-baccalaureate education. It is anticipated that this study will lead very naturally to a generalization of the analysis to broader areas of higher education.

III. Organization

The Yale Higher Education Research Project, although initially established to study and evaluate the Tuition Postponement Option and related University programs and policies, is organized independently of previously existing Yale agencies. Informally related to the Institution for Social and Policy Studies, the Project will report to an advisory committee drawn from the academic departments and administration of the University.

The Project, originally supported out of general university funds, now derives its primary financial support from the Alfred P. Sloan Foundation. Grants from other organizations, both public and private, are currently being sought to permit the broadening of the research effort.

Staffing of the Project is anticipated to be drawn primarily from the faculty of the University. In addition, the Project will provide support for appropriate thesis research in related fields.

In addition to the primary research activities which have been and will be undertaken, the Project staff has and will continue to serve in a consultative, advisory role to the University administration and to other public and private groups concerned with the evaluation of existing programs and the development of new policy and program options.